

IN THE CLAIMS:

Kindly amend the claims as follows:

1. (Original) A method for electrochemically depositing a polysaccharide having a selected physical state, comprising:
providing a substrate comprising a substrate surface, the substrate surface comprising an electrically conductive support;
contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and
electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form a polysaccharide mass having a selected physical state.
2. (Original) A method according to claim 1, wherein the selected physical state comprises that of a hydrogel.
3. (Original) A method according to claim 2, wherein said electrochemically depositing is conducted at a current density of about 20 A/m² to about 100 A/m².
4. (Currently amended) A method according to claim ~~2 or~~ 3, wherein said electrochemically depositing is conducted at a pH of about 5 to about 5.5.
5. (Currently amended) A method according to ~~any one of claims 2 to 4~~ claim 4, wherein said electrochemically depositing is conducted for a deposition time of about 2 minutes to about 30 minutes.
6. (Currently amended) A method according to ~~any one of claims 1 to 5~~ claim 1, wherein said controlling of deposition conditions comprises varying the

deposition conditions during said electrochemical deposition to provide the polysaccharide mass with a hydrogel portion and a solid compact film portion.

7. (Original) A method according to claim 6, wherein the hydrogel portion is layered on top of the solid compact film portion.

8. (Currently amended) A method according to ~~any one of claims 1 to 7~~ claim 1, wherein the selectively insolubilizable polysaccharide comprises an ionizable group that is ionized to provide a positive charge.

9. (Original) A method according to claim 8, wherein the ionizable group comprises a member selected from an alkyl amine group, a primary amine group, a secondary amine group, a tertiary amine group, a guanidinium group, an imidazole group, an indole group, a purine group, a pyrimidine group, and a pyrrole group.

10. (Original) A method according to claim 8, wherein the ionizable group comprises a primary amine group.

11. (Original) A method according to claim 10, wherein the selectively insolubilizable polysaccharide comprises chitosan.

12. (Currently amended) A method according to ~~any one of claims 1 to 11~~ claim 11, further comprising treating the polysaccharide mass with a sufficiently basic solution to stabilize the polysaccharide mass.

13. (Currently amended) A method according to ~~any one of claims 1 to 7~~ claim 1, wherein the selectively insolubilizable polysaccharide comprises an ionizable group that is ionized to provide a negative charge.

14. (Original) A method according to claim 13, wherein the ionizable group comprises a member selected from an alkoxide group, carboxyl group, hydroxy acid group, phenolic group, phosphate group, and sulfhydryl group.

15. (Original) A method according to claim 14, wherein the ionizable group comprises a carboxyl group.

16. (Currently amended) A method according to ~~any one of claims 1 to 7 and 13 to 15~~ claim 13, further comprising treating the polysaccharide mass with a sufficiently acidic solution to stabilize the polysaccharide mass.

17. (Currently amended) A method according to ~~any one of claims 1 to 16~~ claim 1, wherein the substrate comprises a non-conducting, inorganic material.

18. (Original) A method according to claim 17, wherein the substrate comprises silicon.

19. (Currently amended) A method according to ~~any one of claims 1 to~~ claim 18, wherein the electrically conductive support comprises gold.

20. (Currently amended) A method according to ~~any one of claims 1 to 19~~ claim 1, wherein:

the electrically conductive support is patterned and the substrate surface further comprises an electrically non-conductive portion; and

said depositing comprises selectively depositing the selectively insolubilizable polysaccharide on the patterned electrically conductive support.

21. A method according to claim 20, wherein the patterned electrically conductive support comprises a plurality of parallel lines spaced apart from one another.

22. (Currently amended) A method according to ~~any one of claims 1 to 21~~ claim 1, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.

23. (Currently amended) A method according to claim 1, wherein the selectively insolubilizable polysaccharide comprises chitosan, and wherein the polysaccharide mass comprises a hydrogel. [,]

24. (Currently amended) A method for conjugating ~~molecules~~ to a polysaccharide mass, comprising:

providing a polysaccharide mass having a selected physical state and derived from a selectively insolubilizable polysaccharide deposited on an electrically conductive support; and

~~coupling other molecules~~ a component selected from a molecule and cellular species to the polysaccharide mass.

25. (Original) A method according to claim 24, further comprising:

providing a substrate comprising a substrate surface, the substrate surface comprising an electrically conductive support;

contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and

electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form the polysaccharide mass having a selected physical state.

26. (Currently amended) A method according to claim 25, wherein the selectively insolubilizable polysaccharide comprises chitosan, and wherein the polysaccharide mass comprises a hydrogel.[.]

27. (Currently amended) A method according to claim ~~25 or~~ 26, wherein said electrochemically depositing is conducted at a current density of about 20 A/m² to about 100 A/m².

28. (Currently amended) A method according to ~~any one of claims 25 to 27~~ claim 25, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.

29. (Currently amended) A method according to ~~any one of claims 25 to 28~~ claim 25, wherein said coupling of the other molecules to the selectively insolubilizable polysaccharide is performed prior to said electrochemically depositing step.

30. (Currently amended) A method according to ~~any one of claims 25 to 28~~ claim 25, ~~further wherein~~ said coupling of the other molecules to the polysaccharide mass is performed after said electrochemically depositing step.

31. (Currently amended) A method according to ~~any one of claims 25 to 30~~ claim 25, further comprising modifying the selectively insolubilizable polysaccharide to improve conjugatability with reactive groups of other molecules.

32. (Currently amended) A method according to ~~any one of claims 24 to 32~~ claim 24, wherein said coupling comprises covalent bonding.

33. (Currently amended) A method according to ~~any one of claims 24 to 32~~ claim 24, wherein said other molecules comprise one, two, three or more enzyme species.

34. (Currently amended) A method according to ~~any one of claims 24 to 32~~ claim 24, wherein said other molecules comprise one, two, three or more antibody species.

35. (Currently amended) A method according to ~~any one of claims 24 to 32~~ claim 24, wherein said other molecules comprise one, two, three or more receptor molecule species.

36. (Currently amended) A method according to ~~any one of claims 24 to 32~~ claim 24, wherein said other molecules comprise one, two, three or more nucleic acid molecule species.

37. (Currently amended) A method according to ~~any one of claims 24 to 32~~ claim 24, wherein said other molecules are modified to include tyrosine residues.

38. (Currently amended) A method according to claim 37, wherein said coupling of the other molecules to the selectively insolubilizable polysaccharide comprises a tyrosinase-catalyzed oxidation reaction.

39. (Original) A material comprising a selectively insolubilizable polysaccharide hydrogel deposited on an electrically conductive support.

40. (Currently amended) The A material ~~comprising a selectively insolubilizable polysaccharide of claim 39, wherein the hydrogel is~~ deposited in a spatially selective manner.

41. (Currently amended) A device comprising a material of claim 39 ~~or 40~~.

42. (Original) A device according to claim 41, wherein the device comprises a microelectromechanical system.

43. (Currently amended) A device according to claim ~~41 or~~ 42, wherein the device comprises microchannels fabricated in a substrate such that electrodes are located within the microchannels to enable selective electrodeposition using fluidic flow in the microchannels.